WHAT IS CLAIMED IS:

1. A nanocomposite comprising:

about 70 wt % to about 99.99 wt % of at least one polyolefin; and

about 0.01 wt % to about 30 wt % of at least one modified carbon nanotube, wherein the modified carbon nanotube has been functionalized with at least one modifier selected from the group consisting of alkenes and amines.

2. A nanocomposite as in claim 1 wherein the carbon nanotube comprises a single-wall nanotube.

3. A nanocomposite as in claim 1 wherein the carbon nanotube comprises a multi-wall nanotube.

4. A nanocomposite as in claim 1 wherein the carbon nanotube comprises a carbon nanofiber.

5. A nanocomposite as in claim 1 wherein the at least one modifier is an alkene selected from the group consisting of isoprene, butadiene, isobutadiene, and mixtures thereof.

6. A nanocomposite as in claim 1 wherein the at least one modifier is an amine selected from the group consisting of octyl amine, decyl amine, dodecyl amine, hexadecyl amine, octadecylamine, amine terminated branched hydrocarbon chains that can orient the attached hydrocarbons parallel to the long axis of the carbon nanotube, and mixtures thereof.

7. A nanocomposite as in claim 1 wherein the modifier is selected from the group consisting of isoprene and octadecylamine.

8. A nanocomposite as in claim 1 wherein the polyolefin is selected from the group consisting of polyethylenes, polypropylenes, ethylene-propylene copolymers, ultra-high molecular weight polyethylenes, high pressure low density polyethylenes,

linear low density polyethylenes, linear medium density polyethylenes, high density polyethylenes, and modified polyethylenes.

9. A nanocomposite as in claim 1 wherein the polyolefin comprises an ultra-high molecular weight polyethylene.

10. A fiber comprising the nanocomposite of claim 1.

11. A film comprising the nanocomposite of claim 1.

12. A method of producing a nanocomposite comprising:

obtaining at least one carbon nanotube;

functionalizing the at least one carbon nanotube by combining the at least one carbon nanotube with at least one modifier selected from the group consisting of alkenes and amines to produce a modified carbon nanotube; and

blending the modified carbon nanotube with a polyolefin to produce the nanocomposite.

13. A method as in claim 12 wherein the step of obtaining at least one carbon nanotube comprises obtaining a single-wall carbon nanotube as the carbon nanotube.

14. A method as in claim 12 wherein the step of obtaining at least one carbon nanotube comprises obtaining a multi-wall carbon nanotube as the carbon nanotube.

15. A method as in claim 12 wherein the step of obtaining at least one carbon nanotube comprises obtaining a carbon nanofiber as the carbon nanotube.

16. A method as in claim 12 wherein the step of functionalizing the at least one carbon nanotube further comprises generating surface acidic groups on the at least one carbon nanotube by applying to the at least one carbon nanotube an acid selected from the group consisting of potassium chlorate, potassium perchlorate, sulfuric acid, hydrochloric acid, and combinations thereof.

17. A method as in claim 12 wherein the step of functionalizing the at least one carbon nanotube utilizes an alkene modifier selected from the group consisting of isoprene, butadiene, isobutadiene, and mixtures thereof.

18. A method as in claim 12 wherein the step of functionalizing the at least one carbon nanotube utilizes an alkene modifier comprising isoprene.

19. A method as in claim 17 wherein the step of functionalizing the at least one carbon nanotube comprises heating the at least one carbon nanotube and at least one modifier to a temperature ranging from about 90 °C. to about 180 °C. for a period of time ranging from about 5 hours to about 15 hours.

20. A method as in claim 12 wherein the step of generating surface acidic groups on the at least one carbon nanotube utilizes a potassium chlorate/sulfuric acid solution as the acid.

21. A method as in claim 12 wherein the step of functionalizing the at least one carbon nanotube utilizes an amine modifier selected from the group consisting of octyl amine, decyl amine, dodecyl amine, hexadecyl amine, octadecylamine, amine terminated branched hydrocarbon chains that can orient the attached hydrocarbons parallel to the long axis of the carbon nanotube, and mixtures thereof.

22. A method as in claim 12 wherein the step of functionalizing the at least one carbon nanotube utilizes a modifier comprising octadecylamine.

23. A method as in claim 21 wherein the step of functionalizing the at least one carbon nanotube comprises heating the at least one carbon nanotube and at least one modifier to a temperature ranging from about 100 °C. to about 300 °C. for a period of time ranging from about 12 hours to about 30 hours.

24. A method as in claim 12 wherein the step of blending the modified carbon nanotube with a polyolefin utilizes a polyolefin selected from the group consisting of

polyethylenes, polypropylenes, ethylene-propylene copolymers, ultra-high molecular weight polyethylenes, high pressure low density polyethylenes, linear low density polyethylenes, linear medium density polyethylenes, high density polyethylenes, and modified polyethylenes.

25. A method as in claim 12 wherein the step of blending the modified carbon nanotube with a polyolefin utilizes an ultra-high molecular weight polyethylene as the polyolefin.

26. A method as in claim 12 wherein the step of blending the modified carbon nanotube with a polyolefin further comprises mixing the modified carbon nanotube and polyolefin with a component selected from the group consisting of decalin, low molar mass paraffin oils and xylene, to form a modified carbon nanotube suspension.

27. A method as in claim 26 wherein the step of blending the modified carbon nanotube with a polyolefin further comprises mixing the polyolefin with decalin to form a polyolefin solution.

28. A method as in claim 27 wherein the step of blending the modified carbon nanotube with a polyolefin further comprises mixing the modified carbon nanotube suspension with the polyolefin solution at a temperature ranging from about 60 °C. to about 170 °C. for a period of time ranging from about 30 minutes to about 300 minutes.

29. A nanocomposite produced in accordance with the method of claim 12.

30. A fiber comprising the nanocomposite produced in accordance with the method of claim 12.

31. A film comprising the nanocomposite produced in accordance with the method of claim 12.